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Perinatal Periods of Risk: A New Approach to an Age Old Problem, Part I

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Infant mortality in the early 20th century in the United States was extremely high. It is estimated that 100 infants died for every 1,000 live births, and in some U.S. cities 30% of infants died before reaching the first birthday.[1] As the 20th century progressed, improvements in nutrition, medical care availability and practice, and education helped to reduce infant mortality. Further declines in infant mortality resulted from improved sanitation and living conditions, the development and use of antibiotics, technologic advances in neonatal medicine, and immunization practices for many childhood diseases.[1] By 1999, the infant mortality rate in the U.S. had decreased from 100 to 7.1 deaths per 1,000 live births.[2]

However, examining the overall infant mortality rates only paints half the picture. Although infant mortality rates are generally decreasing nationwide, this reduction is not seen uniformly across all population groups. On the contrary, the past century has seen black infants die at a rate twice as high as the rate for white infants.[1,3] In 1999, for example, the black infant mortality rate in the U.S. was 14.6 deaths per 1,000 live births, compared to the white rate of 5.8.[2] Furthermore, this disparity between infant outcomes for blacks versus whites is increasing with time.[4]

Infant mortality in Davidson County mimics the national pattern. Examining infant mortality rates through the past decade (Figure 1) shows that rates in Davidson County are not improving. In 2000, for example, black infants in Davidson County were 3.6 times more likely to die than white infants. Furthermore, infant mortality rates are consistently above the national goal of no more than 4.5 deaths per 1,000 live births. The disparity between white and black infant mortality rates also appears to be increasing with time.

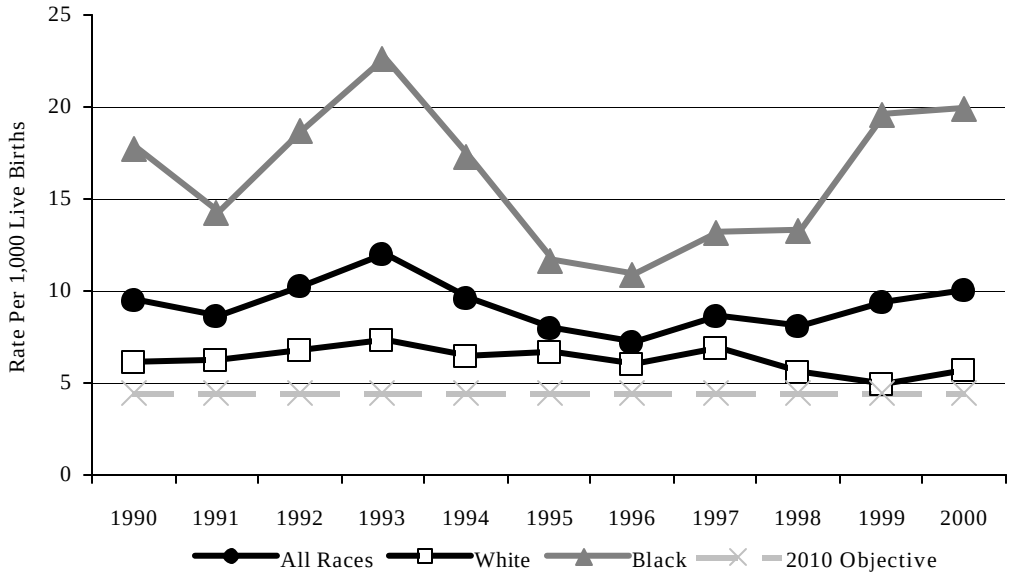
continued on page two

Celebrating Progress Toward Syphilis Elimination in Nashville

On November 21, 2002 a celebration was held at Lentz Public Health Center. The celebration was to acknowledge the sharp decline in the number of cases and rate of primary and secondary (P & S) syphilis in the Nashville community that occurred from 2000 to 2001. In 2000, Nashville was ranked #1 in the U.S. (in selected cities of >200,000 population) for rate of primary and secondary syphilis per 100,000 population at 37.7. However, in 2001, Davidson County's rank dropped to #9 in the U.S. at a rate of 13.3. When examining number of cases of primary and secondary syphilis, Davidson County ranked #7 in the U.S. in 2000 with 200 cases and #17 in 2001 with 76 cases. Those joining in the celebration were those partners who worked so hard together to accomplish this dramatic decrease: STD Free! Coalition members, the Community Health Assessment Team, the Sexually Transmitted Disease Clinic, Prison Health Services, the Division of Epidemiology, and the Division of Research and Evaluation. Preliminary data indicate that 24 cases of P & S syphilis have been reported during the first 11 months of 2002. Pictures and comments from the celebration begin on page 3.

In This Issue:

Figure 1. Infant Mortality Rates by Race of Mother Compared to the Healthy People 2010 Objective, Nashville, TN, 1990-2000



In response to this, the Metropolitan Public Health Department, under the direction of Dr. Stephanie Bailey, joined a national practice collaborative in November of 2000. The purpose of the collaborative is to test a new tool for addressing infant mortality issues called the Perinatal Periods of Risk (PPOR).

Originally developed by Dr. Brian McCarthy from the Centers for Disease Control and Prevention (CDC) with collaborators from the World Health Organization (WHO), the PPOR approach has been used for decades in developing countries to address infant mortality. In 1997, CityMatCH, a national organization of city and county health departments' maternal and child health programs, partnered with CDC, the March of Dimes, and several major urban cities to validate, enhance, and adapt this approach for use in U.S. cities.

Examining infant mortality in U.S. cities revealed four primary factors that the PPOR approach could help address. First, there is no simple, widely accepted approach for communities to examine infant mortality. The lack of a standard approach leaves communities in the position of either developing their own methods or utilizing the information provided to them from other sources. Second, most approaches focus on infant mortality as a whole, and as such, do not identify potential gaps in the community where further reductions in infant mortality may be possible. Third, current approaches do not directly lead a community to appropriate actions such as targeted investigations and preventative activities. Fourth, infant mortality approaches are not easily communicated to the community, inhibiting the ability of the community to mobilize for action.

The PPOR approach addresses each of the points mentioned above, and as a result, is emerging as a powerful tool for both analyzing infant mortality and involving the community in finding a solution. As a data analysis tool, PPOR breaks infant mortality into its component parts allowing a community to see where the biggest problem lies. Once the problem areas are identified, the PPOR approach then suggests avenues of action, which can then guide a community into making informed decisions about how to intervene.

This analysis has been conducted for Davidson County, and the results are forthcoming in the report "Perinatal Periods of Risk: A Community Tool for Addressing Fetal and Infant Mortality". The Metropolitan Public Health Department of Nashville and Davidson County will release this report early in 2003. A summary of the report will be published in the second part of this series.

References

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2. Hoyert DL, Arias E, Smith BL, Murphy SL, Kochanek KD. Deaths: Final Data for 1999. *NVSR*. 1999;48. Hyattsville, Maryland: National Center for Health Statistics. 2001.

continued on page three

Comments of Tina Lester, MS, Assistant Director, Bureau of Communicable Disease and Prevention, at the Syphilis Elimination Celebration November 21, 2002

STD Free! started in November 1998 as a response to our rising number of syphilis cases. At that point in time we considered it to be an epidemic. We asked community leaders and members to come together with the health department to find ways to provide awareness and education to those most at risk and the population at large about syphilis. At that time (data from 1997) our case rate was 38.0 per 100,000 and we were ranked #3 in the country. In 1998, we became #1 in the state surpassing Memphis for the first time since 1977 and #2 in the United States. We were #2 in 1999 (case rate 45.4) and #1 in 2000 (case rate 37.7). The rise in case rate was expected due to increased education, awareness, and screening.

So how did we do this? First, I want to make it clear that this has been a syphilis elimination effort with many programs and initiatives involved. Members of the STD Free! Coalition, our STD/HIV Division here at the Health Department, the Health Promotion Division as well as other health department employees, Tennessee Department of Health, advisors and consultants from the Centers for Disease Control and Prevention (CDC), and of course, the members of the Community Health Action Team…Renee Day, Vernell Fields, Lynn Whitlow, Robyn Worley, and their new leader, Tonya Gunter. Some of our previous members were Brenda Duck, Sherman Childers, Lynn Taylor, and Judi Cornwell.

Second, we had the unique pleasure of hosting the national Syphilis Elimination Launch here in Nashville. STD Free! was featured as a model community initiative on their Stop Syphilis Now website. Through the five workgroups, Faith Community, Schools and Higher Education, Community and Social Service Agencies, Health Care, and Law Enforcement and Courts, many Nashvillians have learned about the risks of STDs, prevention, and treatment and been given the opportunity to know their status by being screened, often in their own neighborhoods, at the library, at school, in the park, at the grocery store and even on the street corner. Some of the annual events like the Haunted House at Tennessee State University and HIV Testing Day have allowed us to screen over 300 individuals for syphilis and HIV at each event.

We have used various media outlets, like bus benches, Titans public service radio announcements, and STD Free! logo on pens, pencils, pads, posters in bathrooms and inside the bus advertisements. We have been to the State Fair, various health fairs, Alcohol and Drug recovery inpatient and outpatient units, colleges, high schools, alternative schools, probation and parole department, homeless shelters and programs, public housing resident meetings, youth church gatherings, medical residents in-services, and correctional

Tina Lester, Assistant Director, Bureau of Communicable Disease and Prevention

facilities. We have hosted special educational symposiums for ministers and physicians. We conducted Train the Trainer sessions for community leaders and residents several times a year.

This is just a short list of events and activities that have been conducted by the STD Free! Coalition in conjunction with public and private partnerships. I firmly believe that the best of this group is yet to come.

In conclusion, I want to say thank you for the opportunity to serve as leadership for the Coalition and the Community Health Action Team. It has been a wonderful learning and working experience for me. I left the most motivated, creative, and fun-loving team that I have ever worked with. Their new director is Ms. Tonya Gunter, who will talk to you about the future direction of the STD Free! Initiative later in this program.

Perinatal Periods of Risk a New Approach to an Age Old Problem, Part I *...continued from page two*

3. Brosco JP. The early history of the infant mortality rate in America: "A reflection upon the past and a prophecy of the future". *Pediatrics.* 1999;103:478-485.
4. Singh GK, Yu SM. Infant mortality in the United States: trends, differentials, and projections, 1950 through 2010. *Am J Public Health*. 1995;85:957-964.

Comments of Tonya Gunter, MS, Health Promotion Team Supervisor, at the Syphilis Elimination Celebration November 21, 2002

To know where you're going
You must know where you are
And
Where you have been!

Chinese Proverb

Tonya Gunter, Health Promotion Team Supervisor

I am very proud to be a part of both the Metro Public Health Department's team and the STD Free! Coalition's efforts in reducing primary and secondary (P & S) syphilis in Nashville.

Tonight you deserve to pat yourself on the back for a job well done — BUT are we there yet?

Three years ago Nashville learned it was #1 – the city with the highest P & S syphilis rate among 64 cities with a population of 200,000 or more in the U.S. Today our P&S syphilis case rate is 13.3 per 100,000 population. But according to Healthy People 2010 our P&S syphilis case rate should be 0.2 per a population of 100,000. This means that Nashville with a population of 500,000+ should have a goal of approximately 1 case.

I challenge you to help us decide, "Where do we go from here"? What are we going to do to sustain these low rates of P&S syphilis? First and most importantly, we need to continue building community partnerships. The STD Free! Coalition has done a tremendous job building relationships and teaching the population about the dangers of sexually transmitted diseases. But in the next few months the coalition must begin planning our future, where we go from here, and what our successes will look like 3 years from now.

Please join the STD Free! Coalition and help us strategically plan "Where do we go from here"? We appreciate your commitment and we will eliminate syphilis.

Comments of Dan McEachern, MS, STD/HIV Program Director, at the Syphilis Elimination Celebration, November 21, 2002

The Sexually Transmitted Disease (STD)/HIV Division at the Metro Public Health Department found itself in a true dilemma in the summer of 1998. We had finished the year 1997 with 203 cases of primary and secondary syphilis. Based on our population, that was 38 cases per 100,000 population. This was an unacceptable situation because the country, as a whole, was experiencing very low rates of syphilis. The southeast U.S. was running contrary to the rest of the country where more of the high rates were concentrated.

We were doing all the traditional things that had worked in the past, but our rates were continuing to climb. We realized that something "outside the box" must be done. The Division of Epidemiology assisted in checking Nashville's 1996 and 1997 syphilis cases against the police arrest records for this same time period. We learned, as a result of this match, that 76 percent of the syphilis cases for those years had an arrest record.

We approached Prison Health Services (PHS), the private company that is contracted by Metro Public Health Department to provide health services for the Criminal Justice Center (CJC). We encouraged them to increase their syphilis screening of inmates. We furnished supplies and transported the specimens to the Tennessee Department of Health (TDH) Laboratory for testing. They focused on inmates who had been arrested on sex and drug related offenses.

We did increase testing by about two thousand tests over the first months of 1999. However, without any financial remuneration, PHS was very limited as to how much time could be spent on the endeavor.

By the end of 1999, the Centers for Disease Control and Prevention (CDC) launched their nationwide Syphilis Elimination Campaign. This kickoff was held here in Nashville and signaled the beginning of their enhanced efforts to help us bring down our very high rate of early (primary and secondary) syphilis. With funds from CDC, we subcontracted with Prison Health Services to hire three LPNs. In return, PHS would screen for syphilis as many people who were arrested as possible. November 1, 1999 was the beginning of our CJC Screening Program, and from the beginning, we began discovering syphilis cases. Soon a high percentage of our syphilis case referrals were originating at the CJC.

Dan McEachern, STD/HIV Program Director

As in any screening project, we see a large number of early and late latent syphilis cases. Unlike a clinic setting where people are coming in on their own because of possible symptoms, we are screening a total population. We attempt to get the inmates treated before they are released. We are greatly aided in the speed by which we can determine the need for treatment by the TDH laboratory's quick turn around of results. We can know the status on the specimens within 2 to 4 hours after delivery to the laboratory. This helps us to treat before release because this population is difficult to find after release.

The percentage of inmates who are tested has gradually increased since beginning this program. It has taken much training of the medical staff and also much encouragement to the employees of the Sheriff's Department. Their buy in has been very important because we all know that the way the screening is presented to the inmate is critical as to whether they will consent to the blood draw or not.

Other things were done to enable us to combat the epidemic in a more efficient way. We established a separate section of Surveillance. We now have five Disease Intervention Specialists and two clerical support staff persons who are responsible for the receipt and investigation of our reported blood tests and cases. This has helped us to do more active surveillance rather that the passive surveillance that we were forced to do in the past. We also have a federal assignee who has worked with our surveillance section and used his previous surveillance experience to set up a system of accountability for the receipt and investigation of reports.

We were also able to add to our field investigation staff, our medical staff, and our administrative staff. This allows us to find the people faster and get them in for treatment and contact follow up. The increase of clinic traffic created the need for other staff to handle the flow of patients.

Another area where we have been more aggressive is in our treatment of suspect and associate contacts. Because of this, we have surely eliminated many cases of incubating syphilis.

continued on page seven

Breastfeeding Forum: Celebrating World Breastfeeding Week

On August 6, 2002, the WIC (Women, Infants, and Children) Program of the Metro Public Health Department (MPHD) sponsored a Breastfeeding Forum in celebration of World Breastfeeding Week, August 1 - 7, 2002. Over 85 people attended the Forum in the Lentz Auditorium. The purpose of the Forum was to educate and mobilize the Nashville community in understanding the facts about breastfeeding. Although the Davidson County WIC Program supports the highest breastfeeding rates in Tennessee (43% of enrolled mothers in 2001), the program feels that there is always room for improvement. Input was sought from the community as to how the Metro Public Health Department and local professionals can assist the community in meeting the standards set by the Surgeon General for the year 2010: 75% of mothers breastfeeding in the early postpartum period, 50% at age 6 months, and 25% at 1 year. Speakers at the Forum included: Dr. Kimberlee Wyche-Etheridge, Director of Maternal and Child Services at MPHD; Dr. Lee Ann O'Brien, pediatrician with Centennial Pediatrics at the Southern Hills location; and Carlotta Crawford, MN, a nurse midwife at East End Women's Health and Birth Center. Hollister Incorporated was a sponsor of the Forum and provided the refreshments for the event. Following are some images from the Forum.

"From a pediatric and public health perspective, breastfeeding is one of the most important preventive practices communities can do to decrease the rates of infant mortality and morbidity."

Dr. Kimberlee Wyche-Etheridge

The crowd at the Breastfeeding Forum filled the auditorium at Lentz Public Health Center and included both fathers and mothers interested in ensuring a healthy start in life for their children.

Three of the speakers at the Forum were (from left to right): Carlotta Crawford, MN, MPH, CNM; Lee Ann O'Brien, MD; and Kimberlee Wyche-Etheridge, MD.

Breastfeeding Forum...continued from page six

"Just as women have fought for their rights, mothers must stand up for the rights of their babies to have the best start in life by breastfeeding. Only women can make breastfeeding the rule rather than the exception!"

Carlotta Crawford, nurse midwife

Glenda King, RD, State WIC Breastfeeding Coordinator, interprets the Tennessee law for support of continued breastfeeding in the workplace.

Dr. Stephanie Bailey, Director of Health, Marianne Greenwood, WIC Breastfeeding Coordinator for MPHD, and Annie Helms, RN, Lactation Consultant for Centennial Hospital, discuss the excellent community representation and involvement at the Forum.

"Being around new parents and parents-to-be is a fun job! Helping to support moms with breastfeeding their babies is very fulfilling. I'm glad I had support when I started nursing my first child almost 10 years ago. I am more convinced every year that breastfeeding makes a difference for babies and their families."

Dr. Lee Ann O'Brien

Metro Public Health Department's WIC Breastfeeding Counselors from left to right: Nadia Acosta (bilingual Spanish), Marianne Greenwood, and Decinda Condrey.

Comments of Dan McEachern...continued from page five

We are very happy that we are no longer ranked number one in the country of cities over 200,000 people for primary and secondary syphilis. In 2001, our rate had dropped to 13.3 per 100,000 population and our unofficial rate for 2002 looks as if it is going to be even lower.

We are also not so naïve to think that we have been able to accomplish this alone. Along with STD Free!, who have done a wonderful job of educating and mobilizing the community, we can all feel proud that the Nashville community has pulled together to help get this problem under control. This does not mean though that we can lessen our efforts because if we relax, we might find ourselves back in the same spot, and we never want to be there again.

Reported cases of selected notifiable diseases for September/October 2002

Disease	Cases Reported in September/October		Cumulative Cases Reported through October	
	2001	2002	2001	2002
AIDS	33	50	174	202
Campylobacteriosis	10	2	36	28
Chlamydia	329	396	1,757	1,786
DRSP (Invasive drug-resistant *Streptococcus pneumoniae*	4	0	21	18
Escherichia coli 0157:H7	0	0	4	5
Giardiasis	6	2	21	30
Gonorrhea	244	301	1,403	1,171
Hepatitis A	12	3	38	17
Hepatitis B (acute)	6	0	23	13
Hepatitis B (perinatal)	1	1	13	22
HIV	53	73	278	280
Influenza-like Illness	0	2	131	225
Neisseria meningitidis disease	0	2	7	5
Salmonellosis	14	3	51	50
Shigellosis	1	1	7	10
Syphilis (primary and secondary)	11	1	74	24
Tuberculosis	12	9	56	57
VRE (Vancomycin-resistant enterococci)	8	0	52	45

To report a notifiable disease, please contact:

Sexually transmitted diseases: John Coursey at 340-0455
AIDS/HIV: Mary Angel-Beckner at 340-5330
Hepatitis B: Denise Stratz at 340-2174
Tuberculosis: Diane Schmitt at 340-5650
Hepatitis C: Pat Sanders at 340-5632
Vaccine-preventable diseases: Mary Fowler at 340-2168
All other notifiable diseases: Pam Trotter at 340-5632

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